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NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION • US DEPARTMENT OF COMMERCE

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FOR IMMEDIATE RELEASE
December 18, 2006

NOAA STUDY SHOWS NUTRIENT POLLUTION INCREASING ALONG MID-ATLANTIC AND NEW ENGLAND COASTS

A NOAA research project shows nutrient pollution in estuaries, bays and harbors from the mid-Atlantic to New England is on the rise, showing excess nutrients like nitrogen and phosphorus are a threat to coastal water quality nationwide. The study's findings are compiled in a report, "Improving Methods and Indicators for Evaluating Coastal Water Eutrophication: A Pilot Study in the Gulf of Maine."

"Nutrient pollution is a pervasive problem that impacts ecosystems and human activities, particularly in highly developed areas," says co-author Suzanne Bricker, physical scientist at NOAA's National Centers for Coastal Ocean Science's Center for Coastal Monitoring and Assessment. "Our study found that the problem is greater in the mid-Atlantic region, which has a higher population density and more intensive watershed development than coastal New England."

New England, however, is not off the hook. The study's results indicated that nutrient pollution in the Gulf of Maine is higher than it was early 1990s, and conditions are expected to worsen as the coastal population in that region increases.

"By including the socioeconomic impacts of pollution in coastal watersheds, we not only prove the value of applying integrated observing technology in coastal management issues, but also in promoting a coastal stewardship that more fully evaluates the environmental impacts of development and other human activity," noted John H. Dunnigan, assistant administrator of the National Ocean Service.

In many systems, future nutrient load increases of 10 to 25 percent are expected. These increases, in addition to the natural processing of nutrients once the loads reach estuarine waters, are important factors related to "eutrophication," the process by which excess nutrients — whether from storm water runoff, sewage treatment plants, septic systems, airborne dust, or agriculture — fuel excessive algal blooms that lead to low oxygen conditions. Severe eutrophication causes a number of impacts to ecosystems, ultimately leading to the death of marine organisms, including important commercial fish species.

"Evaluating the extent of eutrophication, and how it impacts different parts of the ecosystem, is the first, critical step toward developing strategies to address it," says Dwight Trueblood, NOAA co-director for the Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET), which co-sponsored the study. CICEET is a partnership between NOAA and the University of New Hampshire.

NOAA scientists developed a "human use indicator" that looked at the impact of nutrient pollution on recreational fish catches, making the study distinctive by regarding human activity as part of the ecosystem; enhancing traditional methods to assess eutrophication.

“Coastal managers and the public need a way to understand how low oxygen conditions impact the fisheries that are major economic drivers for their regions,” says Bricker. “We’ve developed an indicator that, once tested and expanded, can be used to predict the loss of fish that will potentially occur when dissolved oxygen concentrations drop to a specific, low level.”

The assessment methods were originally developed in the 1990s and were modified through this study. They will serve as the basis for an update of NOAA's National Estuarine Eutrophication Assessment that will be released in 2007.

In 2007 the National Oceanic and Atmospheric Administration, an agency of the U.S. Commerce Department, celebrates 200 years of science and service to the nation. From the establishment of the Survey of the Coast in 1807 by Thomas Jefferson to the formation of the Weather Bureau and the Bureau of Commercial Fisheries in the 1870s, much of America's scientific heritage is rooted in NOAA.

NOAA is dedicated to enhancing economic security and national safety through the prediction and research of weather and climate-related events and information service delivery for transportation, and by providing environmental stewardship of our nation's coastal and marine resources. Through the emerging Global Earth Observation System of Systems (GEOSS), NOAA is working with its federal partners, more than 60 countries and the European Commission to develop a global monitoring network that is as integrated as the planet it observes, predicts and protects.

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On the Web:

Improving Methods and Indicators for Evaluating Coastal Water Eutrophication: A Pilot Study in the Gulf of Maine: <http://ccma.nos.noaa.gov/publications/TMNCCOS20.pdf>
NOAA: <http://www.noaa.gov/>
NOAA National Ocean Service: <http://www.oceanservice.noaa.gov/>
NOAA National Centers for Coastal Ocean Science: <http://coastalscience.noaa.gov/>
NOAA Center for Coastal Monitoring and Assessment: <http://ccma.nos.noaa.gov>
Cooperative Institute for Coastal and Estuarine Environmental Technology: <http://ciceet.unh.edu>
National Estuarine Eutrophication Assessment (1999):
http://spo.nos.noaa.gov/projects/cads/nees/Eutro_Report.pdf